Claims 21, 29, and 32 have been amended to clarify these points.

Claims 22, 30, and 33

The phrase "third object step with an associated second route segment" has been amended to refer to "an associated third route segment".

35 U.S.C. 103 Rejection

Claim 21

Du teaches the application of a central Workflow Process Management system to coordinate functions which may be executed on separate distributed computers. Du describes the functions of work nodes and rule nodes in column 8 lines 35-44. The work nodes represent process segments that may be processed in a distributed computer as an object. At the completion of a work node, the central workflow indicates the node complete and processes the next node in the route. Control of the work nodes is by the central workflow. The distributed computer executes the process segment associated with the work node assigned to it and signifies completion of the segment to the central workflow. The distributed computer has no information or visibility of the object rout of the central workflow. All of the rule nodes are processed in the central workflow and not in a distributed computer.

Note the example provided by the Examiner on Page 9 paragraph (f) forms a first route that includes rule nodes, R nodes, and not taught by Du to be processed in a distributed computer. Also, the step of forming the first route from the first object route is not taught by Du.

The work nodes may themselves be workflow processes with one or more steps where the workflow is encapsulated at the distributed computer. Du provides for a first object step associated with an encapsulated first route segment where the first route segment is processed by a distributed computer. Similarly for the second object step.

Du does not teach forming a first route by connecting the first route segment and the second route segment based on the sequence of the central route as in claim 21.

In the example of Du Figure 7, W1 represents a work node that invokes a first sequence of workflow process steps in a distributed computer and W2 represents a work node that invokes a second sequence of workflow process steps. W1 follows W2 in the central route. In Du, the first sequence of workflow process steps for W1 are invoked in a distributed computer and at completion, returned to the central workflow which then invokes the second sequence of workflow process steps for W2 in the distributed

computer. The relationship of W1 followed by W2 is only represented in the central workflow. In Du, distributed computer does not have information of the relationship W1 followed by W2 since it only has information about the specific sequence requested.

The present invention teaches the creation of a route by connecting the first sequence followed by the second sequence and invoking the connected sequence of workflow steps in the distributed computer. The route is processed by the distributed computer asynchronously and independent of the central workflow, starting with the W1 sequence and returning at the completion of the W2 sequence. The distributed computer does not return to the central workflow at the completion of the W1 sequence as would be the case for Du.

Claim 22

The central workflow in Du provides feedback or branch back to previous nodes. Du does not teach connecting the sequences of process steps to form a connected route with the feedback connection for asynchronous processing in a distributed computer. The central workflow provides the information of the feedback when the distributed computer completes the specific node as requested by the central workflow. The distributed computer does not have information about the feedback as represented in rule nodes R6 or R7. The present invention provides for feedback in the route processed by the distributed computer.

Claim 23

The central workflow in Du provides the alternative route segment of node R2 or work node W4 in Figure 7. Du does not teach connecting the sequence of process steps to form a connected route with the alternative route segment for asynchronous processing in a distributed computer. The central workflow provides the alternative route segments when rule node R3 is processed. With Du, the distributed computer does not have a route with node R3 with branch choices node R2 or W4. The present invention provides for alternative route segments that are connected to the route processed in the distributed computer based on the sequence of object steps.

Claim 24

In the example cited by the Examiner, rule node R8 is processed by the central workflow and not a completion or initiation of a route segment in a distributed computer. In Du, each process segment initiation corresponds to the beginning of the work node for that process so Du does not require notification. Du does not teach the connecting of

sequences of processes steps so does not provide for notification of initiation of the process segment corresponding to a work node embedded in the connected sequence. In the example of Figure 7, Du provides W1 followed by W2. At the completion of W1, the distributed computer returns to the central workflow. In the present invention, the sequence of process steps for W1 and W2 are connected and the distributed computer returns to the central workflow at the completion of W2. Claim 24 provides for a signal to the central workflow when the sequence of process steps for W2 started.

Claim 25

Similar to Claim 24, the present invention provides for a signal to the central workflow at the completion of a sequence of process steps corresponding to an object step. In the example, the signal is at the completion of W1. Note that a route may contain the process sequences for multiple object steps so signaling beginning or completions permits the central workflow to synchronize with the distributed computer.

Claim 26-28

It is widely recognized that identifiers as barcodes or RFID are used for item tracking and collecting item information. However as taught by Du, the information collected at the central workflow are related to the execution of the central workflow and not concerned with the specifics of the process steps in the distributed computers. With Du, status information may be passed back at the completion of a work node but does not teach sending back information while the work node is asynchronously executing. Specifically, between an ERP system and a shopfloor system, the ERP may require information of the number of items at specific steps in the shopfloor process. For example, work nodes W1 followed by W2 in Figure 7 may represent two workcenter processes comprising multiple steps in a manufacturing process. In Du, W1 must complete before W2 is executed and is thus in lock step with the distributed computer. With Du, the central workflow must track each item that is manufactured. For 100 items, Du must process W1 and W2 a 100 times.

However, the present invention provides the distributed computer the connected route to process each item through the process segment corresponding to W1 and W2 asynchronous with respect to the central workflow and completes when all of the100 items are processed. Claim 26 provides continuing notification of the number of items corresponding to the work nodes W1 and W2. The central workflow can report the number of items at W1 and W2 as production status at these workcenters.

Not all items pass tests in the manufacturing process and some items at W2 are returned to W1 for repair. Claim 27 provides for the netting of the items reported to the central workflow to account for item returned or scrapped.

Claim 28 provides for the reporting of the item identifiers during the asynchronous execution of the connected route in the distributed computer corresponding to W1 and W2.

Claims 29-31 and **claims 32-39** recite the same limitations as claims 21-28 and the same discussion points apply to the corresponding claims.

Claim 32

Du provides an abstract level workflow implemented by HP Open PM but does not specify a detailed level workflow for the distributed computer. Neither Du nor HP Open PM teach associating route segments with abstract level object steps and connecting the associated route segments in the sequence of the object route for asynchronous, independent execution in a detailed level workflow at the distributed computer.

The limitation of the internet has been deleted since it added no value.

Summary

Neither Du nor Kenton teach forming a route for execution in a second workflow means from an object route for execution in a separate, independent, asynchronous first workflow means by associating each object step in the object route with a route segment and connecting the associated route segments in the sequence of the object steps.

Neither Du nor Kenton teach starting the object route in the first workflow and the route in the second workflow and completing the route in the second workflow and the object route in the first workflow.

The present invention is significantly different from Du or Kenton and serves a unique and useful purpose as described in the disclosure.

Claims have been amended only to clarify the items noted by the Examiner for U.S.C. 112 and did not add any new information.
The Inventor appreciates the Examiner's through and thoughtful examination and responses.
Please allow claims 21-39.

The claims are grouped: 21-28, 29-31, and 32-39 where claims 21, 29, and 32 are independent claims.

Please call the Inventor after reading this response so that he may clarify any issues. 408-757-5862 or e-mail at Ken.Ouchi@Avidtecs.com

Respectfully submitted

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